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10/591,370	09/01/2006	Kenichi Ishii	P/1929-102	8112
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EXAMINER DONADO, FRANK E				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/591,370

**Applicant(s)**

ISHII ET AL.

**Examiner**

FRANK DONADO

**Art Unit**

4173

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-8,10-13,15-27,30-38,40-49,51,52,54-59,62-74,78,79 and 82-110 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-846)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/01/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1,5-8,10-13,15-27,30-38,40-49,51-52,54-59,62-74,78-79 and 82-110.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

From here on, Friday, et al, shall be referred to as Friday, Nakagawa, et al, shall be referred to as Nakagawa, Beeson, Jr., et al, shall be referred to as Beeson, Rieser, et al, shall be referred to as Rieser, Papadimitriou, et al, shall be referred to as Papadimitriou and Ryan, et al, shall be referred to as Ryan.

2. Claims 1, 5-8, 10-13, 15-19, 21-22, 31-40, 25-27, 52, 59, 62-65, 67-68, 70, 88, 91-96 and 103-110 are rejected as being unpatentable over Friday in view of Nakagawa.

Regarding claims 1, 59 and 70, Friday teaches a positioning system for detecting the position of a terminal, comprising: a radio transceiver configured to transmit unique information from a given installation position, a terminal configured to receive the unique information transmitted from the radio transceiver device and position estimation means configured to estimate the position of the terminal based on radio

transceiver position information and the unique information received by the terminal, said installation position information including the unique information and position information indicating the installation position of the radio transceiver device in association with each other, wherein the position estimation means is configured to read out from the radio transceiver position information the position information corresponding to the unique information based on one or more unique information received by the terminal within a past predetermined time period and estimate the position of the terminal based on the read out position information, wherein a positioning system for detecting the position of a terminal, which is called a wireless node, comprises an infrastructure radio transceiver (IRT) device configured to transmit unique information of a terminal used to identify the terminal location [Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figure 9], wherein a wireless node location module estimates the location of the wireless node based on the latest received signal strength of the Infrastructure Radio Transceiver (labeled IRT 1, IRT 2, etc. in a database used to manage unique information), estimation parameters, including the unique information, are stored in a database called a coverage map, estimation parameters include signal strength measurements, identification #'s of the IRT's, location coordinates of the IRT's and timestamp information, timestamp information is used to record the latest signal strength information that overwrites the old value, the wireless node location module determines the location coordinates that best fit the coverage maps associated with the antennas (which are included in the IRT) selected to locate the wireless node, based

on the received signal strength of the IRT, and the estimation parameters are predetermined time period information. Friday fails to teach an illumination device for transmitting the unique information. Nakagawa teaches using an illumination device, which he calls a lighting unit or lighting side communication device, to transmit data where the receiving device can be a cellular phone, PDA or some other well-known terminal where the position of said lighting side communication device is determined from the transmitted data [Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211]. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday to use an illumination device instead of a radio transceiver as the transmission unit to transmit the unique information for benefits such as invisible light, line of sight (LOS) transmission and no FCC licensing agreements in the case of infrared (IR) transmission and visible light and low cost in the case of white light transmission.

Regarding claims 5 and 6, Friday in view of Nakagawa teaches the limitations of claim 1. Friday further teaches a position estimation means configured to estimate the position of the terminal based on the unique information received by the terminal most recently and based on most frequently received unique information among one or more unique information received by the terminal within a past predetermined time period [Column 10, lines 5-11, 24-37, 41-46], wherein locating a terminal, which he calls a wireless node, is based on latest signal strength data used to essentially overwrite the old signal strength data (received during past time period), where this signal strength

data is related to unique information that is stored in a database called a coverage map. Also, a timestamp corresponds to the last packet or frame when successive wireless frames are encountered.

Regarding claims 7 and 8, Friday in view of Nakagawa teaches the limitations of claim 1. Friday further teaches a position estimation means is configured to add a weighting value to one or more unique information received by the terminal within a past predetermined time based on the reception time of the respective unique information and estimate the position of the terminal based on unique information selected based on a result of the addition, and a position estimation means is configured to increase the weighting value as the reception time becomes newer, select unique information having the largest value resulting from the addition and estimate the position of the terminal based on the selected unique information [Column 10, lines 5-11, 24-37, 41-46], wherein locating a terminal, which he calls a wireless node, is based on latest signal strength data used to essentially overwrite the old signal strength data (received during past time period), where this signal strength data is related to unique information that is stored in a database called a coverage map. Also, a timestamp corresponds to the last packet or frame when successive wireless frames are encountered. Since locating a terminal is based on the latest signal strength data, more weight is added to the latest information received.

Regarding claims 10 and 62, Friday in view of Nakagawa teaches the limitations of claims 1 and 59. Nakagawa further teaches the illumination device comprising a light emission unit for emitting an illumination light and a transmission unit for transmitting the unique information, wherein the transmission unit comprises a white LED for emitting a visible light signal and the white LED is configured to transmit the unique information on the visible light signal [Pg. 3, Paragraph 27], wherein the illumination device that uses white LED's for transmitting unique information acts as said illumination device and said illumination device may be used in a system where the position of said lighting side communication device is determined from the transmitted data.

Regarding claims 11 and 63, Friday in view of Nakagawa, teach the limitations of claims 1 and 59. Nakagawa further teaches an illumination device comprising a light emission unit for emitting an illumination light and a transmission unit for transmitting the unique information, the transmission unit comprising an infrared LED for emitting an infrared ray signal and the infrared LED being configured to transmit the unique information on the infrared ray signal using infrared light to transmit unique information [Pg. 2, Paragraphs 13 and 15], wherein the light emitting unit is made up of LED's and the emitted light may be infrared.

Regarding claims 12 and 64, Friday in view of Nakagawa teaches the limitations of claims 1 and 59. Friday in view of Nakagawa further teaches an illumination device



comprising a light emission unit for emitting an illumination light and a transmission unit for transmitting the unique information, said transmission unit comprising a wireless communication unit for transmitting a radio signal and said wireless communication unit configured to transmit said unique information on the radio signal, [Nakagawa, pg. 1, Paragraph 12 and Friday, Column 10, lines 5-11 and Figure 2B], wherein a lighting element may be used to transmit data in a location device but a radio transceiver is used instead to send unique information over a radio signal, using a wireless network interface unit to transmit the unique information.

Regarding claims 13 and 65, Friday in view of Nakagawa teaches the limitations of claims 1 and 59. Friday further teaches a transmission unit configured to transmit unique information to the terminal at random timing [Column 10, lines 5-11, 24-37 and 41-46 and Column 11, lines 1-16, 27-37 ], wherein a transmission unit is configured to transmit unique information at times that are not specific and are therefore random.

Regarding claims 15 and 16, Friday in view of Nakagawa teaches the limitations of claim 10. Nakagawa further teaches an illumination device comprising a light emission unit for emitting an illumination light, a transmission unit for transmitting the unique information and a power source unit, where each of the light emission unit and transmission unit are configured to be separable from the power source unit and connected to the power source unit using a power source interface of a fluorescent tube for a fluorescent illumination device and the light emission unit and transmission

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unit incorporate a power conversion unit [Nakagawa, Abstract and Pg. 11, Paragraph 160 ], wherein an illumination device transmits a light signal and transmits unique information, a power line supplies electric power to a LED light source and is separate from the LED light source and an illuminative light source is constructed using fluorescent lamp containing LED's in a row to put out white light.

Regarding claims 17-19, Friday in view of Nakagawa teaches the limitations of claim 16. Nakagawa further teaches a power conversion unit is configured to convert an AC power supplied from the power source interface of a fluorescent tube into a DC power used by the light emission unit and transmission unit, the light emission unit uses the fluorescent tube and the transmission unit incorporates the power conversion unit and the power conversion unit is configured to convert an AC power supplied from the power source interface of a fluorescent tube into a DC power used by the transmission unit [Pg. 1, Paragraph 10 and Pg. 11, Paragraph 160], wherein a power conversion unit is configured to convert an AC power supplied from the power source interface of a fluorescent tube into a DC power used by a light emission unit that is a transmission unit and a LED lightsource is driven by the received DC power that is supplied through AC-DC conversion by an AC-DC converter.

Regarding claim 21, Friday in view of Nakagawa teaches the limitations of claim 18. Nakagawa further teaches a power conversion unit comprising a power holding circuit for holding a power required for transmission of the unique information [Pg. 1,

Paragraph 10], wherein a power conversion unit holds power required for transmitting unique information through an illumination device.

Regarding claim 22, Friday in view of Nakagawa teaches the limitations of claim 18. Nakagawa further teaches two electrode terminals, which are the power source interface of a fluorescent tube, formed at one side of the fluorescent tube and power input terminals, which are connected to the power conversion unit for supplying a power to the transmission unit, are electrically connected in parallel to each other [Pg. 7, Paragraphs 84, Pg. 17, Paragraph 207, Pg. 19, Paragraph 234 and Pg. 20, Paragraph 241 and figures 6 and 7], wherein a reflector/modulator is in a terminal side communication device and capable of carrying out parallel data transmission from the terminal communication device and a shared electrode may be grounded along with an optical modulator and an electric power divider.

Regarding claims 25-27 and 67, Friday in view of Nakagawa teaches the limitations of claims 10 and 59. Nakagawa further teaches the illumination device comprises a light emission unit for emitting an illumination light, a transmission unit for transmitting the unique information and a power source unit, and each of the light emission unit and transmission unit is connected to the power conversion unit using a power source interface of an incandescent light bulb for an incandescent light bulb illumination device, the light emission unit and transmission unit incorporate a power conversion unit, and in the case where the light emission unit and transmission unit of the

illumination device are connected to a power source unit by means of a power source interface of an incandescent light bulb for an incandescent light bulb illumination device, the light emission unit and transmission unit convert a DC power voltage supplied from the power source interface of an incandescent light bulb into a voltage form that they can use [Pg. 1, Paragraph 10 and Pg. 11, Paragraph 158], wherein a lighting element uses an incandescent light bulb, a power conversion unit is configured to convert AC power into DC power used by the light emission unit and transmission unit, and a LED light source is driven by the received DC power that is supplied through AC-DC conversion by an AC-DC converter.

Regarding claims 31 and 68, Friday in view of Nakagawa teaches the limitations of claim 10 and 59. Friday in view of Nakagawa further teaches an illumination device comprising a light emission unit for emitting an illumination light and a transmission unit for transmitting the unique information, where the transmission unit is configured to determine an angle at which the unique information is transmitted depending on the size of the area within which the unique information can be received and installation level of the illumination device [Friday, Column 7, lines 9-18 and 41-47 and Nakagawa, Pg. 1, Paragraph 12, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device comprises a light emission unit that can be used for emitting an illumination light and transmitting unique information to a terminal but a radio transceiver is used instead as the transmission unit, using antennas positioned at a certain angle

Regarding claim 32, Friday in view of Nakagawa teaches the limitations of claim 10. Friday in view of Nakagawa further teaches an illumination device comprising a light emission unit for emitting an illumination light and a transmission unit for transmitting unique information, the transmission unit being configured to determine the number and output power of LED's constituting the transmission unit that transmits the unique information depending on the size of the area within which the unique information can be received, installation level of the illumination device, gain characteristics of a receiver of the terminal for receiving the unique information, and output characteristics of the LED's constituting the transmission unit that transmits the unique information [Nakagawa, Pg. 1, Paragraph 12, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211 and Friday, Column 2, lines 58-62, Column 4, lines 17-21, Column 10, lines 24-37 and Column 11, lines 1-16], wherein an illumination device comprises a light emission unit that can be used for emitting an illumination light by using LED's and transmitting unique information to a terminal but a radio transceiver is used instead as the transmission unit, a location device using said radio transceiver comprises a database called a coverage area map containing a physical model of the coverage area of the radio transceivers, the angle at which the antennas that are contained within the radio transceivers need to be to transmit unique information, gain characteristics of the antennas that are contained within the radio transceiver transmission units, wherein said gain characteristics are used to determine the orientation of the antennas and signal strength (output power) of the antennas.

Regarding claim 33, Friday in view of Nakagawa teaches the limitations of claim 32. Nakagawa further teaches a transmission unit comprising a plurality of LED's for emitting a light signal, the LED's being configured to transmit the unique information on the light signal in different directions [Pg. 3, Paragraph 27], wherein a white LED and infrared LED are used in an illumination device that transmits unique information.

Regarding claims 34 and 69, Friday in view of Nakagawa teaches the limitations of claim 33 and 59. Friday in view of Nakagawa further teaches the transmission unit is configured to determine the number of LED's that transmit the unique information depending on a difference in the transmission direction between the adjacent two LED's, transmission angles of LED's, size of the area within which the unique information can be received, and installation level of the illumination device [Nakagawa, Pg. 1, Paragraph 12, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211 and Friday, Column 2, lines 58-62, Column 4, lines 17-21, Column 10, lines 24-37 and Column 11, lines 1-16], wherein an illumination device can be used as a light emission unit for emitting an illumination light and transmitting unique information to a terminal but a radio transceiver is used instead, and a location device that uses said radio transceiver comprises a database containing an RF physical model of the coverage area of the radio transceivers and the angle at which the antennas that are contained within the radio transceivers need to be to transmit unique information.

Regarding claim 35, Friday in view of Nakagawa teaches the limitations of claim 1. Nakagawa further teaches an illumination device is configured to emit a light having a color indicating that it is transmitting unique information [Pg. 3, Paragraph 27], wherein an illumination device uses white LED's for transmitting unique information.

Regarding claim 36, Friday in view of Nakagawa teaches the limitations of claim 1. Nakagawa further teaches an illumination device configured to emit a light using different colors for each service type [Pg. 3, Paragraph 32, Pg. 5, Paragraph 56 and Pg. 6, Paragraph 57], wherein different colors are used in an illumination device to accomplish different tasks.

Regarding claim 37, Friday in view of Nakagawa teaches the limitations of claim 1. Friday in view of Nakagawa teaches an illumination device configured to emit light using different colors, for each service provider providing a service, using the position information of the terminal [Friday, Column 11, lines 1-16 and Nakagawa, Pg. 2, Paragraph 13], wherein multiple light sources that emit different color lights can be used to transmit unique information to a terminal but a radio transceiver is used instead, and a location device using said radio transceiver locates a terminal using coordinate information to locate the terminal, wherein said location device comprises a database that associates different parameters together and includes coordinate position information.

Regarding claim 38, Friday in view of Nakagawa teaches the limitations of claim 36. Nakagawa further teaches an illumination device is configured to illuminate the area within which the terminal can receive the unique information with an illumination light [Pg. 14, Paragraph 184], wherein an illumination device transmits data to a terminal in a defined "light receiving" area.

Regarding claim 40, Friday in view of Nakagawa teaches the limitations of claim 1. Friday in view of Nakagawa further teaches the illumination installation position information is configured to be created by associating the unique information collected by the terminal and installation position of the illumination device with each other [Column 11, lines 27-37 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device can be used to transmit unique information to a terminal so the position of the terminal can be determined but a radio transceiver is used instead, and a location device using said radio transceiver transmits unique information, wherein unique information transmitted from said radio transceiver is associated with position information in a coverage area map.

Regarding claim 52, Friday in view of Nakagawa teaches the limitations of claim 1. Nakagawa further teaches an illumination device comprising a rechargeable battery and configured to transmit information by using a power supply from the rechargeable battery in the case where it cannot use a power source thereof [Pg. 5, Paragraph 52],



wherein an emergency light embedded with a battery turns on a light source during an emergency where electric power is not supplied by the power source. The source is made up of LED's.

Regarding claim 88, Friday in view of Nakagawa teaches the limitations of claim 87. Friday further teaches the protection means comprises current detection means, determination means, and switching means, wherein the current detection means is configured to detect the output current value of the power conversion unit and notifies the determination means of the detected output current value, and the determination means is configured to compare the notified output current value and a previously set threshold value, and in the case where the output current value is smaller than the threshold value, output of a DC power is stopped by the switching means, while in the case where the output current value is larger than the threshold value, a DC power is output by the switching means [Column 7, lines 48-66 and Column 11, lines 61-63], wherein a detector detects signal strength, signal-to-noise ratio, etc., an antenna selection module determines which antenna to use for receipt of a signal corresponding to a packet or frame, said switch is used to switch among antennas after the antenna selection module determines which antenna to use, and the coverage map contains information regarding signal strength set out to a threshold signal strength.

Regarding claim 91, Friday in view of Nakagawa teaches the limitations of claim 1. Friday in view of Nakagawa teaches a terminal is carried by a person entering a

specified area, and the positioning system comprises entering person detection means configured to detect the person who has entered the specified area, entering person information management means configured to manage information concerning the person who has entered the specified area, leaving person detection means configured to detect a person who has left the specified area, leaving person information management means configured to manage information concerning the person who has left the specified area and remainder identification means configured to identify a person who remains in the specified area, wherein the remainder identification means is configured to compare entering person information managed by the entering person management means and leaving person information managed by the leaving person information management means, identify a person who has entered the specified area but has not left the specified area as a remainder and identify the position of the terminal carried by the remainder, except for unique information is sent to an entering/leaving person detection means, and a receiving database contains same type of information such as name, department name, etc. for entering/leaving persons [Friday, Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figures 2A, 3A, 3B and 9 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device can be used to transmit unique information to a terminal so the position of the terminal can be determined but a radio transceiver is used instead as the transmission unit, a detector detects the signal strength from an entering/leaving person, a location device using said radio transceiver

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transmits unique information (can detect entering or leaving persons or persons remaining in room), said unique information transmitted from said radio transceiver (IRT1, IRT2 for the infrastructure radio terminals) is associated with position information in a database called a coverage area map that can be used to store information concerning entering, leaving or remaining persons, and an estimation means called a wireless node location module estimates position of terminals corresponding to entering, leaving or remaining persons. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to transmit the same type of information in the location system to an entering person detection means and use the database as an entering person information management means, since the examiner takes Official Notice of the equivalence of an entering person detector used with its corresponding entering person information management means and a detector used with its corresponding coverage area map, respectively, for their use in the art of security systems and the selection of any of these known equivalents to detect and store information would be within the level of ordinary skill in the art.

Regarding claims 92-93 and 95, Friday in view of Nakagawa teaches the limitations of claim 91. Friday in view of Nakagawa further teaches the terminal comprises signal reception means configured to receive the unique information transmitted from the illumination device and information transmission means configured to transmit the received unique information and terminal identification information on a radio signal,

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wherein the position of the terminal is identified based on the unique information, terminal identification information transmitted from the terminal and the information transmission means utilizes a PHS, and the storage means is set outside the terminal and the terminal and storage means are configured to communicate with each other using the information transmission means, except for a terminal is replaced by a PHS (PHS is the Japanese equivalent to PCS and stands for Personal Handyphone System, just another way of saying terminal) [Friday, Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figure 9 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein a terminal receives unique information, a radio transceiver transmits unique information and terminal identification information to a database called a coverage area map and a wireless node location module estimates the position of the terminal based on information stored in the database, including unique information, coordinate information of the radio transceiver, signal strength, timestamp information and other parameters. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use a PHS as a terminal for the benefit of using the standard accepted types of terminals used in Japan or countries where PHS is the standard, since the examiner takes Official Notice of the equivalence of PHS and PCS for their use in the art of cellular telephony and the selection of any of these known equivalents to transmit signals and information as components of a location system would be within the level of ordinary skill in the art.

Regarding claims 94 and 96, Friday in view of Nakagawa teaches the limitations of claim 91. Friday in view of Nakagawa further teaches the entering person detection means and leaving person detection means are constituted by a plurality of the illumination devices installed near a gateway to the specified area, the storage means is configured to store the unique information and terminal identification information, and the moving direction detection means is configured to detect the moving direction of the person carrying the terminal from the stored unique information and terminal identification information, wherein the terminal, which is carried by a person who passes through the gateway from outside of the specified area and enters or leaves the specified area, is configured to receive the unique information transmitted from the illumination device and use the storage means to store the received unique information and terminal identification information, the moving direction detection means is configured to refer to a change of the unique information transmitted from the specified terminal stored by using the storage means, estimate the moving direction of the person carrying the terminal detect the person as an entering person in the case where the moving direction is toward the inside of the specified area and detect the person as a leaving person in the case where the moving direction is toward the outside of the specified area and the leaving person detection means is configured to detect, as a leaving person, the person carrying the terminal that has received the unique information transmitted from the illumination device installed outside the specified area, except for an additional specified area called a gateway and additional illumination

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devices are used [Friday, Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figure 9 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device can be used to transmit unique information to a terminal so the position of the terminal can be determined but a radio transceiver is used instead, a detector detects the signal strength from an entering/leaving person, a location device using said radio transceiver transmits unique information (can detect entering or leaving persons or persons remaining in room), said unique information transmitted from said radio transceiver (IRT1, IRT2 for the infrastructure radio terminals) is associated with position information in a database called a coverage area map that can be used to store information concerning entering, leaving or remaining persons, and an estimation means called a wireless node location module estimates position of terminals corresponding to entering, leaving or remaining persons. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday to use an additional specified area and illumination devices for the benefit of added security in a location system, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 103 and 105, Friday in view of Nakagawa teaches the limitations of claim 1. Nakagawa further teaches the transmission unit is installed to a fixing body such that the direction in which the transmission power of the transmission unit

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becomes maximum is downward or horizontal, except for the location of the transmission system facing downward or horizontal [Pg. 9, Paragraph 137], wherein a lighting element that is a transmission unit is fixed to the ceiling. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to position the lighting element facing downward so maximum power transmission could be downward or horizontal for the benefit of covering the maximum amount of transmission area, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claims 104, Friday in view of Nakagawa teaches the limitations of claim 103. Nakagawa further teaches a receiver of the unique information that the terminal has is attached to a moving body such that the direction in which the reception gain of the receiver becomes maximum is upward, except for the location of the receiving system facing downward [Pg. 9, Paragraph 137], wherein a lighting element that is a transmission unit is fixed to the ceiling and the receiving unit receives the signal strength from the transmission from a certain direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to position a receiving unit for maximum signal strength to be received upwardly for the benefit of covering the maximum amount of transmission area, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claims 106, Friday in view of Nakagawa teaches the limitations of claim 105. Nakagawa further teaches a receiver of the unique information that the terminal has is attached to a moving body such that the direction in which the reception gain of the receiver becomes maximum is horizontal, except for the location of the receiving system facing horizontal [Pg. 9, Paragraph 137], wherein a lighting element that is a transmission unit is fixed to the ceiling and the receiving unit receives the signal strength from the transmission from a certain direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to position a receiving unit for maximum signal strength to be received horizontally for the benefit of covering the maximum amount of transmission area, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claims 107, Friday in view of Nakagawa teaches the limitations of claim 106. Nakagawa further teaches two receivers are attached to a moving body, except for using two receivers instead of one [Pg. 9, Paragraph 137], wherein a lighting element that is a transmission unit is fixed to the ceiling and the receiving unit receives the signal strength from the transmission from a certain direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to position two receiving terminals to a moving person by attaching them at a certain point on the person's body for maximum signal



strength to be received from a certain direction covering the maximum amount of transmission area, since it has been held that mere duplication of the essential working parts of a device and rearranging parts of an invention involves only routine skill in the art involves. *St. Regis Paper Co. v. Bernis Co.*, 193 USPQ 8 and in *re Japikse*, 86 USPQ 70.

Regarding claims 108, Friday in view of Nakagawa teaches the limitations of claim 107. Nakagawa further teaches two receivers are attached to a moving body such that the directions in which the reception gains of the receivers become maximum are right and left, except for the location of the receivers facing left and right [Pg. 9, Paragraph 137], wherein a lighting element that is a transmission unit is fixed to the ceiling and the receiving unit receives the signal strength from the transmission from a certain direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to position two receiving terminals to a moving person by attaching them at a certain point on the person's body for maximum signal strength to be received from the left and right for the benefit of covering the maximum amount of transmission area, since it has been held that mere duplication of the essential working parts of a device and rearranging parts of an invention involves only routine skill in the art involves. *St. Regis Paper Co. v. Bernis Co.*, 193 USPQ 8 and in *re Japikse*, 86 USPQ 70.

Regarding claim 109, Friday in view of Nakagawa teaches the limitations of claim 106. Friday in view of Nakagawa further teaches a positioning system configured to determine entering/leaving of the moving body into/from a specified zone based on the unique information received by the receiver and the direction of the moving body based on the unique information received by the receiver [Friday, Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figure 9 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device can be used to transmit unique information to a terminal so the position of the terminal can be determined but a radio transceiver is used instead, a detector detects the signal strength from an entering/leaving person, a location device using said radio transceiver transmits unique information (can detect entering or leaving persons or persons remaining in room), said unique information transmitted from said radio transceiver (IRT1, IRT2 for the infrastructure radio terminals) is associated with position information in a database called a coverage area map that can be used to store information concerning entering, leaving or remaining persons, and an estimation means called a wireless node location module estimates position of terminals corresponding to entering, leaving or remaining persons.

Regarding claim 110, Friday in view of Nakagawa teaches the limitations of claim 106. Friday in view of Nakagawa further teaches a positioning system configured to determine the direction of the moving body based on the unique information received

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by the receiver [Friday, Summary of the Invention, Column 10, lines 5-11, 24-37, 41-46, Column 11, lines 1-16, 27-37 and Figure 9 and Nakagawa, Pg. 1, Paragraph 12, Pg. 2, Paragraph 13, Pg. 10, Paragraph 143 and Pg. 17, Paragraph 211], wherein an illumination device may be used to transmit unique information to a terminal so the position of the terminal can be determined but a radio transceiver is used instead, and the direction of a terminal that is carried by a moving person/body can be determined.

3. Claims 20, 23-24, 30 and 87, 89-90 are rejected as being unpatentable over Friday in view of Nakagawa and further in view of Examiner's Official Notice.

Regarding claims 20 and 87, Friday in view of Nakagawa teaches the limitations of claim 18. Friday in view of Nakagawa fails to teach the power conversion unit comprising an overcurrent protection circuit for protecting the power source unit of the fluorescent illumination device. Official Notice is taken that both the concept and advantages of using overcurrent protection circuit or other similar circuit such as a surge protector are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use an overcurrent protection circuit for the benefit of protecting the power source unit of a fluorescent illumination device from receiving too much current.

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Regarding claim 23, Friday in view of Nakagawa teaches the limitations of claim 22. Friday in view of Nakagawa fails to teach the fluorescent tube is a straight fluorescent tube having two electrode terminals respectively on both sides thereof, the straight fluorescent tube further comprising a power acquisition unit which is connected in parallel to the two electrode terminals formed at one side thereof and acquiring a power to be supplied to the power conversion unit, the power acquisition unit being formed into a plate having two holes through which the two electrode terminals are inserted. Official Notice is taken that both the concept and advantages of drilling holes into plates are well known and expected in the art. It would have been obvious to modify the invention of Friday in view of Nakagawa to drill holes on both sides of a plate for the benefit of inserting two electrode terminals.

Regarding claim 24, Friday in view of Nakagawa and further in view of Examiner's Official Notice teaches the limitations of claim 23. Friday in view of Nakagawa fails to teach the power acquisition unit has a thickness of 1.3 mm or less. Official Notice is taken that both the concept and advantages of varying the thickness and size of electrical components are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use a power acquisition unit with 1.3 mm thickness for the benefit of fitting it in the space provided for it in the location system.

Regarding claim 30, Friday in view of Nakagawa teaches the limitations of claim 10. Friday in view of Nakagawa fails to teach the illumination device comprises a light emission unit for emitting an illumination light, a transmission unit for transmitting the unique information, a solar battery unit and a rechargeable battery for storing a power supplied from the solar battery unit, wherein said transmission unit is configured to transmit the unique information by using a power supplied from the solar battery unit and to transmit the unique information when a power required for the transmission of the information has been stored in the rechargeable battery. Nakagawa teaches an illumination light using a LED used for transmission of unique information that uses a battery where AC is converted to DC power to be used by the illuminating transmission unit [Paragraphs 398 and 399], except for Nakagawa does not teach the battery is rechargeable and does not teach a solar battery unit used to supply power to the rechargeable battery. Official Notice is taken that both the concept and advantages of using a solar battery are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use a solar battery for the benefit of supplying power to be stored in the battery and using the battery as a backup, since a solar battery unit is more durable than a regular, non-solar battery unit and needs only a light source such as the sun to function.

Regarding claim 89, Friday in view of Nakagawa teaches the limitations of claim 18. Friday in view of Nakagawa fails to teach the power conversion unit and transmission

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unit are connected by a connection interface, the connection interface comprising insulating means configured to prevent an electrical contact from outside at connection time. Official Notice is taken that both the concept and advantages of insulating electrical components are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use an insulating means for the benefit of protecting the power conversion unit and transmission unit from outside contact which may cause damage to the circuit.

Regarding claim 90, Friday in view of Nakagawa teaches the limitations of claim 89. Friday in view of Nakagawa fails to teach the connection interface is an electrode covered by an insulating body. Official Notice is taken that both the concept and the advantages of using an electrode in an electrical circuit are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use an electrode in a location system for the benefit of passing current from the metallic part to the non-metallic part of the electrical circuit.

4. Claims 41, 43-45, 71-74 and 97-98 are rejected as being unpatentable over Friday in view of Nakagawa and further in view of Beeson.

Regarding claims 41, 43-45 and 71-74 Friday in view of Nakagawa teaches the limitations of claims 1 and 59. Friday in view of Nakagawa fails to teach a second positioning system where the first positioning system and second positioning system can be operated in a switchable manner, the positioning system is configured to identify the position of the terminal by using the unique information that the illumination device transmits, in the case where requested terminal position information is logical position information, the positioning system is configured to identify the position of the terminal by using the second positioning system, in the case where the positioning system could not identify the position of the terminal by using the unique information, and the positioning system is configured to determine whether to identify the position of the terminal by using the unique information or by using the second positioning system, based on the type of the requested terminal position information. Beeson teaches a second positioning system where the first positioning system and second positioning system can be operated in a switchable manner, the positioning system is configured to identify the position of the terminal by using the unique information that the illumination device transmits, in the case where requested terminal position information is logical position information, the positioning system is configured to identify the position of the terminal by using the second positioning system, in the case where the positioning system could not identify the position of the terminal by using the unique information, and the positioning system is configured to determine whether to identify the position of the terminal by using the unique information or by using the second positioning system, based on the type of the requested terminal position information

[Column 2, lines 10-17, Column 4, lines 1-4 and 11-18 and Column 22, lines 53-67], wherein a terminal is located using a home location register, the visitor location register and the equipment identity register in a modular switching system, said Home Location Register contains data that is unique to the customer, which is permanent data independent of the terminal user's current location and the visitor location register (VLR) contains current data for each mobile customer, including the terminal user's most recently known location. A system is used where identifiers called international mobile subscriber identification (IMSI) and Temporary Mobile Subscriber Information (TMSI) are used to identify the location of a terminal user. The Temporary Mobile Subscriber Identification (TMSI) includes unique information related to VLR data for the terminal identified by that TMSI. The IMSI is permanent location information, such as address of the terminal user, and the TMSI is related to unique information, such as the terminal user's most recently known location. Either the IMSI or a TMSI may be used as a primary identifier. If this is the first authentication request or an authentication request which for some reason has failed and the system administration is using TMSI identification, the backup IMSI (the less specific, permanent information) is used for the benefit of authenticating the customer and assigning a new TMSI. The second positioning system of Beeson is used in case the first positioning system is not able to locate the terminal. Kenichi uses a second positioning system to locate a terminal by more permanent information, such as the floor location or department name in case the first positioning system fails to locate the terminal by current location, which is more specific/temporary information. It would have been obvious to one of ordinary skill in



the art at the time of the invention to modify the invention of Friday to use a second positioning system to identify location of a terminal user by more permanent and less specific information in case the first positioning system could not identify a more exact location.

Regarding claims 97 and 98, Friday in view of Nakagawa teaches the limitations of claim 91. Friday in view of Nakagawa fails to teach the positioning system is configured to be switched to a second positioning system and said second positioning system is configured to identify the position of a PHS base station with which the terminal communicates, as the position of the terminal. Beeson teaches a positioning system is configured to be switched to a second positioning system and said second positioning system is configured to identify the position of a PHS (same as a terminal) base station with which the terminal communicates, as the position of the terminal [Column 2, lines 10-17, Column 4, lines 1-4 and 11-18 and Column 22, lines 53-67], wherein a terminal is located using a home location register, the visitor location register and the equipment identity register in a modular switching system, said Home Location Register contains data that is unique to the customer, which is permanent data independent of the terminal user's current location and the visitor location register (VLR) contains current data for each mobile customer, including the terminal user's most recently known location. A system is used where identifiers called international mobile subscriber identification (IMSI) and Temporary Mobile Subscriber Information (TMSI) are used to identify the location of a terminal user. The Temporary Mobile

Subscriber Identification (TMSI) includes unique information related to VLR data for the terminal identified by that TMSI. The IMSI is permanent location information, such as address of the terminal user, and the TMSI is related to unique information, such as the terminal user's most recently known location. Either the IMSI or a TMSI may be used as a primary identifier. If this is the first authentication request or an authentication request which for some reason has failed and the system administration is using TMSI identification, the backup IMSI (the less specific, permanent information) is used for the benefit of authenticating the customer and assigning a new TMSI. The second positioning system of Beeson is used in case the first positioning system is not able to locate the terminal. Kenichi uses a second positioning system to locate a terminal by more permanent information, such as the floor location or department name in case the first positioning system fails to locate the terminal by current location, which is more specific/temporary information. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use a second positioning system to identify location of a terminal user by more permanent and less specific information in case the first positioning system could not identify a more exact location.

5. Claim 42, 49, 51 is rejected as being unpatentable over Friday in view of Nakagawa and further in view of Beeson and further in view of Rieser.

Regarding claim 42, Friday in view of Nakagawa and further in view of Beeson teaches the limitations of claim 41. Friday in view of Nakagawa and further in view of Beeson further teaches a second positioning system. Friday in view of Nakagawa and further in view of Beeson fails to teach a positioning system using wireless LAN. Rieser teaches a second positioning system that is a positioning system using wireless LAN, [Pg. 14, Paragraph 290], wherein a typical wireless LAN configuration, a transmitter/receiver (transceiver) device, called an access point, connects to the wired network from a fixed location using standard cabling, at a minimum, the access point receives, buffers, and transmits data between the wireless LAN and the wired network infrastructure, a single access point can support a small group of users and can function within a range of less than one hundred to several hundred feet, the access point (or the antenna attached to the access point) is usually mounted high but may be mounted essentially anywhere that is practical as long as the desired radio coverage is obtained, and said WLAN positioning system uses unique identifiers to locate the terminal. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday to use a second positioning system using wireless LAN for the benefit of wireless, Line of Sight Communication and location of a target terminal.

Regarding claim 49, Friday in view of Nakagawa and further in view of Rieser teaches the limitations of claim 48. Friday in view of Nakagawa and further in view of Rieser fails to teach the positioning system is configured to store, as the attribute information

of the terminal, a name of a department to which a terminal user belongs. Beeson teaches a positioning system is configured to store, as the attribute information of the terminal, a name of a department to which a terminal user belongs [Abstract], wherein a terminal is located, and the home address of the terminal user is identified. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday to store permanent information of a terminal user such as department name instead of a home address for the benefit of knowing less specific, yet more reliable information regarding the terminal user.

Regarding claim 51, Friday in view of Nakagawa and further in view of Rieser teaches the limitations of claim 47. Friday in view of Nakagawa and further in view of Rieser fails to teach the positioning system is configured to display the terminal position information corresponding to a specified display condition and to specify, as the display condition, information of floors in which the terminal exists. Beeson teaches a positioning system is configured to display the terminal position information corresponding to a specified display condition and to specify, as the display condition, information of floors in which the terminal exists [Abstract], wherein a terminal is located, and the home address of the terminal user is identified. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday to store permanent information of a terminal user such as floor in which terminal exists instead of a home address for the benefit of knowing less specific, yet more reliable information regarding the terminal user.

6. Claims 47-48 and 78-79 are rejected as being unpatentable over Friday in view of Nakagawa and further in view of Rieser.

Regarding claims 47 and 78, Friday in view of Nakagawa teaches the limitations of claim 1. Friday in view of Nakagawa fails to teach the positioning system is configured to display acquired terminal position information and to switch a display method of position information depending on the accuracy of acquired terminal position information. Rieser teaches a positioning system is configured to display acquired terminal position information and to switch a display method of position information depending on the accuracy of acquired terminal position information [Abstract], wherein terminal information is displayed in a positioning system. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to use a display in a terminal location system to view terminal position and other related information.

Regarding claims 48 and 79, Friday in view of Nakagawa and further in view of Rieser teaches the limitations of claims 1 and 78. Friday in view of Nakagawa and further in view of Rieser further teaches the positioning system has a function of storing attribute information concerning the terminal and of displaying the position information of the terminal corresponding to specified attribute information [Abstract], wherein terminal

information is displayed in a positioning system, including identification and location information.

7. Claims 54, 55-58, 82 and 83-86 are rejected as being unpatentable over Friday in view of Nakagawa and further in view of Rieser and further in view of Papadimitriou.

Regarding claim 54 and 82, Friday in view of Nakagawa and further in view of Rieser teaches the limitations of claims 1 and 78. Friday in view of Nakagawa and further in view of Rieser fails to teach a positioning system is configured to identify a user terminal in response to a position information request concerning a user of the terminal, acquire the position information of the identified terminal and select one terminal in order of priority set for the respective terminals to acquire the position information thereof, in the case where a plurality of the user terminals exist.

Papadimitriou teaches a positioning system is configured to identify a user terminal in response to a position information request concerning a user of the terminal, acquire the position information of the identified terminal and select one terminal in order of priority set for the respective terminals to acquire the position information thereof, in the case where a plurality of the user terminals exist [Abstract, Column 5, lines 47-48 and 52-55 Column 6, 58-67 and table at top of Column 7], wherein a terminal location system assigns a subscribed priority level, and the subscribed priority level is stored in memory and codes are assigned to terminal users, depending on the type of call. For example, in a location system that uses enhanced Multilevel Precedence and

Preemption (eMLPP), the following codes are assigned to users of different type: such as priority level A for 911/highest priority users, priority level B for home network users/2nd highest priority and priority level 0 for high priority foreign/3rd highest priority users. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa to assign priority values based on the type of terminal user and store this information in the location's database for the benefit of filling location request orders in the order received.

Regarding claim 55-58 and 83-86, Friday in view of Nakagawa and further in view of Rieser and further in view of Papadimitriou teaches the limitations of claim 54 and 82. Friday in view of Nakagawa and further in view of Rieser and further in view of Papadimitriou teaches the priority is configured to be determined based on the type of the terminal [Column 5, lines 52-55], wherein priority for users is set based on the type of terminal device.

8. Claims 99-102 are rejected as being unpatentable over Friday in view of Nakagawa and further in view of Ryan.

Regarding claims 99-100, Friday in view of Nakagawa teaches the limitations of claim 91. Friday in view of Nakagawa fails to teach the entering/leaving person detection means comprises a reading device configured to store information for the person to identify him or herself and read out the information from a second terminal carried by

the person and an entrance/exit permission device which allows the person to enter the specified area in the case where readout of the information succeeds, wherein the entering/leaving person information management means is storage means configured to store the information of the person allowed to enter/leave the specified area. Ryan teaches an entering/leaving person detection means comprising a reading device configured to store information for the person to identify him or herself and read out the information from a second terminal carried by the person and an entrance/exit permission device which allows the person to enter the specified area in the case where readout of the information succeeds, wherein the entering/leaving person information management means is storage means configured to store the information of the person allowed to enter/leave the specified area, except for a second terminal is not attached to an entering/leaving person [Pg. 6, Paragraph 89, Pg. 13, Paragraphs 229 and 230 and Pg. 17, Paragraph 317], wherein a mobile phone can be used as an access card called a "smart fob" that can be used to access buildings and stores a biometric such as fingerprint, iris scan, etc. in a memory cell that is locked and when using the smart fob to gain access to a controlled area, the user touches his finger to a reader, waves the smart fob in front of a reader, the finger print is compared to the stored info, the user's identity is verified, and he is granted access. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa and further in view of Ryan to attach a second terminal to a person desiring access to or exit from a building, since it has been held



that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bernis Co.*, 193 USPQ 8.

Regarding claim 101, Friday in view of Nakagawa teaches the limitations of claim 91, Friday in view of Nakagawa fails to teach the leaving person detection means comprises a reading device configured to store information for the person to identify him or herself and read out the information from a second terminal carried by the person, an exit permission device which allows the person to leave the specified area in the case where readout of the information succeeds or a request from outside is received, a plurality of the illumination devices installed near the gateway to the specified area, a storage means configured to store the unique information and terminal identification information; and moving direction detection means configured to detect the moving direction of the person carrying the terminal from the stored unique information and terminal identification information, wherein in the case where the exit permission device allows the person to leave the specified area in response to a request made from outside irrespective of success or failure of the readout of the information, the terminal, which is carried by the person who enters the specified area through the gateway and leaves from the specified area, is configured to receive the unique information transmitted from the illumination device; and use the storage means to store the unique information and terminal identification information; and the moving direction detection means is configured to: refer to a change of the unique information transmitted from the specified terminal stored by using the storage means; estimate

the moving direction of the person carrying the terminal; and detect the person as a leaving person in the case where the moving direction is toward the outside of the specified area, except for a second terminal is not attached to exiting person [Pg. 6, Paragraph 89, Pg. 13, Paragraphs 229 and 230 and Pg. 17, Paragraph 317], wherein a mobile phone can be used as an access card called a "smart fob" that can be used to access buildings and stores a biometric such as fingerprint, iris scan, etc. in a memory cell that is locked and when using the smart fob to gain access to a controlled area, the user touches his finger to a reader, waves the smart fob in front of a reader, the finger print is compared to the stored info, the user's identity is verified, and he is granted access. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa and further in view of Ryan to attach a second terminal to a person desiring exit from a building, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bernis Co.*, 193 USPQ 8.

Regarding claim 102, Friday in view of Nakagawa and further in view of Ryan teaches the limitations of claim 99. Friday in view of Nakagawa and further in view of Ryan further teaches the second terminal is a noncontact IC card and the reading device is a card reader, except for a second terminal is not attached to entering person [Pg. 6, Paragraph 89, Pg. 13, Paragraphs 229 and 230 and Pg. 17, Paragraph 317], wherein a mobile phone can be used as an access card called a "smart fob" that can be used to

access buildings and stores a biometric such as fingerprint, iris scan, etc. in a memory cell that is locked and when using the smart fob to gain access to a controlled area, the user touches his finger to a reader, waves the smart fob in front of a reader, the fingerprint is compared to the stored info, the user's identity is verified, and he is granted access. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Friday in view of Nakagawa and further in view of Ryan to attach a second terminal to a person desiring exit from a building, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bernis Co.*, 193 USPQ 8.

### ***Conclusion***

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

**Maloney, et al, (2005/0148346)** discloses a mobile station location system using a GPS embedded system inside a mobile unit.

**Leblanc, et al, (2006/0025158)** discloses a location system that locates both local and global mobile stations.

**Karr, et al. (2003/0222820)** discloses a location system for commercial wireless telecommunications infrastructures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK DONADO whose telephone number is (571) 270-5361. The examiner can normally be reached on Monday-Thursday, 7:30 am -5 pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frank Donado  
Art Unit 4173

/Lewis G. West/

Art Unit: 2618

Primary Examiner, Art Unit 2618